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## **Increasing trends in in situ breast cancer incidence in a region with no population-based mammographic screening program: results from Zurich, Switzerland 2003-2014**

Karavasiloglou, Nena ; Matthes, Katarina L ; Berlin, Claudia ; Limam, Manuela ; Wanner, Miriam ; Korol, Dimitri ; Rohrmann, Sabine

**Abstract:** **PURPOSE** Increase in in situ breast cancer (BCIS) incidence has been reported across Europe and the USA. However, little is known about the trends in BCIS incidence in regions without population-based mammographic screening programs. We set out to investigate these trends in Zurich, Switzerland, where only opportunistic mammographic screening exists. **METHODS** Data from 989 women diagnosed with a primary BCIS between 2003 and 2014 were used in our analyses. Age-standardized incidence rates per 100,000 person-years (ASR) were computed per year. Additional analyses by BCIS subtype, by age group at diagnosis and by incidence period were conducted. Incidence trends over time were assessed using joinpoint regression analysis. **RESULTS** The overall BCIS ASR was 10.7 cases per 100,000 person-years with an increasing trend over the study period. A similar trend was observed for the ductal carcinoma in situ (DCIS) ASR, while the lobular carcinoma in situ (LCIS) ASR decreased. Age-specific analyses revealed that the 50-59 year age group had the highest BCIS ASR. The highest increase in BCIS ASR, even though not statistically significant, was observed for the < 40 year age group. **CONCLUSIONS** BCIS ASR increased linearly over a 12-year period. The increase was reflected by an increase in DCIS ASR, whereas LCIS ASR decreased over time. The highest increase in BCIS ASR over the study period was observed for the < 40 year age group, even though not statistically significant. Patient and tumor characteristics of this group that may be associated with BCIS development warrant further investigation.

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Article Title: Increasing trends in in-situ breast cancer incidence in a region with no population-based mammographic screening program. Results from Zurich, Switzerland 2003-2014

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Online Resource 1. Incidence of in-situ breast cancer (BCIS), ductal carcinoma in-situ (DCIS) and lobular carcinoma in-situ (LCIS) by age category at diagnosis over the entire study period and by 4-year intervals (per 100,000 person-years)

|                  | BCIS | DCIS | LCIS | BCIS  | DCIS | LCIS | BCIS  | DCIS | LCIS | BCIS  | DCIS | LCIS | BCIS | DCIS | LCIS |
|------------------|------|------|------|-------|------|------|-------|------|------|-------|------|------|------|------|------|
| Age at diagnosis | <40  |      |      | 40-49 |      |      | 50-59 |      |      | 60-69 |      |      | >70  |      |      |
| 2003-2014        | 0.44 | 0.42 | 0.01 | 2.34  | 2.01 | 0.31 | 4.24  | 3.76 | 0.43 | 2.53  | 2.29 | 0.21 | 1.15 | 1.03 | 0.11 |
| 2003-2006        | 0.36 | 0.36 | 0    | 2.50  | 1.91 | 0.55 | 3.78  | 2.93 | 0.74 | 2.45  | 2.05 | 0.30 | 1.00 | 0.90 | 0.10 |
| 2007-2010        | 0.40 | 0.36 | 0.03 | 2.02  | 1.75 | 0.24 | 3.89  | 3.51 | 0.38 | 2.18  | 2.02 | 0.15 | 1.21 | 1.05 | 0.16 |
| 2011-2014        | 0.55 | 0.55 | 0    | 2.51  | 2.38 | 0.13 | 5.07  | 4.86 | 0.18 | 2.97  | 2.79 | 0.18 | 1.24 | 1.15 | 0.07 |